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PHOMOPSIS BLIGHT OF EGGPLANTS

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This disease of eggplant has been referred to by the common names leafspot, fruit rot, stem-canker, collar-rot, foot-rot, tipover, blight, wilt and damping-off in Florida and other Southeastern states where it appears annually. The large number of common names have accumulated probably because the parasitic fungus, *Phomopsis vexans* (S. & S.) Hart., causes definite diseases on seedlings, stems, leaves and fruits of eggplant. The fungus attacks all parts of the plant above the ground and frequently the stem below the soil line. It is not known to affect any other cultivated plants.

It has been known to cause the complete loss of plants in extensive seedbeds where the stems were infected at or slightly below the soil line, resulting in their death or such manifest stunting that they were discarded. The principal loss, however, occurs with the fruit which is very susceptible to infection, resulting in a rapidly spreading brown rot. The rot progresses so rapidly that often large shipments leaving the packinghouse in apparently first class condition arrive at destination with 80 to 100 percent infection. In fields where the disease is prevalent often less than half of the crop is harvested. Early infection in fields causes more loss than later infection.

The disease is spread in the fields by the pickers and by the custom of the grower of leaving rotting fruit in the rows. Diseased fruits are overgrown by the fungus and produce spores in abundance which are capable under average conditions of causing infection on healthy fruit in less than a week. The disease can be found in almost every eggplant field in Florida at some time during its production period.

In this state there are indications that the fungus survives from crop to crop on the same land in old plant stems and even mummied fruits that have not fully disintegrated. It is also known that the fungus mycelium and spores are carried on the seed and that often the mycelium penetrates the seed. By these means the fungus is introduced with the seed into the seedbed. Seedlings from diseased seeds become infected and serve as a source of infection for other seedlings before they are transplanted to the field. These infected seedlings may escape notice in the seedbed and when transplanted to the field will develop collar-rot, tipover, leaf-spot and stem-cankers. These infections weaken and kill plants and produce enough spores to serve as a continuous source of inoculum for the leaves and fruits that are produced on otherwise healthy plants.

The first symptom or indication of the disease in the seedbed is the

typical damping-off in which the seedlings still in the cotyledon stage become weakened at the soil line, fall over on the soil and die. Occasionally small black specks, which are the spore-producing structures of the fungus, are plainly visible on the roots. These specks are reliable diagnostic characters of this disease and aid in distinguishing it from damping-off caused by other common soil fungi.

When conditions are not favorable for severe attacks or when the plants are not killed, the fungus invades the cortical tissue of the stem near the soil line and forms superficial cankers that may penetrate to the woody part of the stem. These lesions may completely surround the stem and prevent normal enlargement in this area, while the uninfected upper parts continue to enlarge, resulting in a bottle neck effect. When the tops become heavy the stem breaks over at the constriction, hence the common name tipover. Varying degrees of this stem injury can be found in many eggplant fields.

Infections occurring on the main branches, leaf petioles and fruit stems are frequently several inches in length, tan to brown in color and speckled with the black pycnidia in which the spores of the fungus are produced. These lesions kill the bark or cortex and whenever they encircle the stem or branch the parts above them die. Stem cankers frequently make their appearance late in the season when the plants are fully developed and harvest has begun. The disease is evident on the leaves in the form of smooth, brown, abruptly-delimited, irregular spots of various sizes up to an inch in diameter. These spots can be distinguished from all others by the ever-present, small, scattered, black pycnidia. The older leaves are usually more seriously infected.

The fruit rot is the most important phase of the disease from the grower's viewpoint. The earliest indication of fruit infection is the appearance of specks on the surface of the fruit that are darker than the normal purple color of the fruit. These small spots rapidly fade to a tan color within 24 to 36 hours, depending on temperature, and in two to three days expand into large sunken circular to oval spots that often involve a large portion of the fruit. As these spots get older numerous black pycnidia develop in the center and gradually appear in more or less concentric zones over the whole tan area. They have previously been mentioned as appearing on seedling roots, stems, foliage and branches and are the most dependable diagnostic symptom.

The control of this disease necessarily begins with the selection of the seed. If there is no assurance that the seed are disease-free, they should be carefully disinfected by soaking them for 6 to 8 minutes in a 1:1,000 solution of corrosive sublimate. This treatment will destroy spores of the fungus adhering to the seed coat but will not kill the mycelium that has penetrated it. Following the seed treatment the grower must prepare a seedbed on soil that has never been planted to eggplants for the best success in disease control. If such land is not available, the soil should be disinfected. The field to which the seedlings are to be transplanted should not have been planted to eggplants for several years. A spraying program should be employed in which bordeaux mixture 4-4-50 or 20-80 copper-lime dust is applied frequently enough to protect the plants, usually at weekly intervals, during the early season.

Sanitation should be rigidly practiced. Remove from the field all diseased and dead plants as rapidly as they appear. Also gather all unmarketable fruit and dispose of it daily because most of these fruits are diseased and until they disintegrate continue to produce spores, which are spread by wind and rain.